Questioned Documents Unit (QDU)
Procedures for Conducting Office Equipment Ribbon Examinations

1 Scope

These procedures will be used by a forensic document examiner or document analyst for examinations involving the transcription of carbon typewriter ribbons, facsimile ribbons, or other readable machine ribbons.

2 Equipment/Materials/Reagents

- Ribbon Analysis Workstation 3.9.85 (RAW II), or comparable equipment
- Fostec 150 watt tungsten halogen light, or comparable equipment
- Laboratory Supplies Co., Inc. 30 watt transmitted light box, or comparable equipment
- Manual typewriter ribbon reader

3 Standards and Controls

Not Applicable.

4 Sampling

Not Applicable.

5 Procedures

5.1 Readable Machine Ribbons

5.1.1 If the ribbon or cartridge submitted for transcription is a readable machine ribbon (e.g., facsimile machine ribbon, credit card machine ribbon), transfer the item(s) to the Forensic Imaging Unit for transcription.

5.1.1.1 If the ribbon contains limited text, the examiner may use backlighting and manually transcribe the text by recording what is visible on the ribbon.

5.1.1.2 The examiner does not need to keep copies of the machine transcriptions for routine transcription requests, but will advise the contributor that no copy is being retained upon return of the submission. If the examiner keeps a copy of the routine transcription, it must be maintained within the case records.

5.2 Typewriter Ribbons

5.2.1 If the ribbon or cartridge that is submitted for transcription is from a typewriter, visually inspect the ribbon to determine if the item is suitable for machine or manual transcription.
Redacted

If not machine suitable, transcribe manually or discontinue examinations.

5.2.1.1 If the item is suitable for machine transcription, ribbon analysis will be performed using the RAW II. The examiner must provide the following to the analyst responsible for operating the RAW II:

- A copy of the incoming communication.
- A copy of the Laboratory Worksheet (7-2), or equivalent in FA.
- The original ribbon in the ribbon cartridge.

5.3 Ribbon analysis using the RAW II with a pristine ribbon:

- Turn on RAW II ribbon reader.
- Turn on the RAW II computer.
- Select RAW icon which brings user to Main Menu.
- Select Case Management to add comments such as Lab number, File number,
  Redacted
- Go back to the Main Menu and select Spooling:
  A. Take the ribbon out of the cartridge.
  B. Position ribbon so that the carbon is facing down on the reel and tape tightly.
  C. Select Slow, Medium, or Medium Fast buttons from the Spooling Mode based on the condition of the ribbon.
  D. When spooling is complete, select Stop button.
  E. Run the ribbon across the spindles so that the carbon side of the ribbon is facing the camera and tape tightly to the bottom reel.
  F. Go back to Main Menu.
- Select Record/Playback button which will take you to the Record Playback Mode:
  A. Select Motor Control which takes user to Motor Control Mode. Select start to move the ribbon from reel to reel while passing through the light box with text appearing on the monitor. Check to make sure that the light box window is open wide enough to pick up all characters in full. If not, the user will open light box windows until characters are in full view.
  B. Once user is satisfied with the light box window setting, select Stop which will stop the motors.
  C. Manually wind the ribbon back to the beginning.
  D. Select Return to Record/Playback screen, then select Record to begin recording text. While recording, never select the Stop button. Use the

Pause button to stop the recording if any adjustments need to be made.

E. Select the Stop button when the ribbon is finished recording, and the encoding process immediately begins. The longer the ribbon, the longer it will take for the ribbon to encode. Encoding can take from 10 to 40 minutes.
F. After the ribbon has finished encoding, go back to the Main Menu.

- Select the Text button from the Main Menu:
  A. Select Parameter Setting, then select Learn 1. Set both the Define Windows and Ignores (lines) and Set Character Width (characters) parameters. The starting point (beginning of text on ribbon) is defaulted, unless you want to view or print a certain page or pages, then enter necessary numbers to move to that area of text on the ribbon and it will appear on the monitor.
  B. Go to Learn 2 and select Continuous Display to view the spacing of the text on the ribbon. If alignment is off, go back to Learn 1 and reset the necessary parameters again. If text is running backwards, select Manual Settings from the Parameter Setting and change the Reserve field from whatever is currently showing (i.e., if Yes, change to No, if No, change to Yes). This will make the text go in the proper direction. If the letters are out of sequence, (i.e., a lot of misspelled words), go to Learn 2 Settings and make the necessary adjustments using Min Width, Max Split, Max Char Width, and Max Black. Return to Learn 2 and select Continuous Display to display the text.
  C. Once satisfied with the parameter settings, go to the Text Mode Main Menu and select Print. The transcription of the text contained on the ribbon will be printed out.

5.4 The examiner does not need to keep copies of the RAW II transcriptions for routine transcription requests, but will advise the contributor that no copy is being retained upon return of the submission. If the examiner keeps a copy of the routine transcription, it must be maintained within the case records.

5.5 Damaged carbon ribbons should be manually read if the carbon is badly damaged throughout the ribbon. Damage to the ribbon includes but is not limited to the lack of carbon on the ribbon, misaligned text, and mangled ribbon.

5.5.1 If the ribbon is not suitable for machine transcription due to damage or other factors, or if the ribbon contains limited text, the examiner may manually transcribe the text by recording what is visible on the ribbon. To manually transcribe a ribbon, take the ribbon out of the cartridge and note in the case records any specific type of damage to the ribbon. Make sure the carbon side is facing downwards and tape end tightly to plastic reel. Place reel onto manual typewriter ribbon reader and wind to the beginning. Once user gets to the beginning of the ribbon, transcribe the ribbon manually by using backlighting as needed and recording character by character what is visible on the ribbon. If manually transcribed, the transcription must be maintained as part of the case notes.

5.6 If a request is made to determine if a particular text is contained on a submitted ribbon,

the examiner has the option of transcribing the entire ribbon using the RAW II, or manually searching the ribbon for the desired text.

5.6.1 If the requested text is searched for and located on the submitted ribbon, a copy of that portion of the transcription or a description of its location will be noted in the case records.

5.6.2 If a paper fiber impression transfer examination is to be conducted between the text located on the submitted ribbon and typewritten text on a document, refer to the *QDU Procedures for Conducting a Paper Fiber Impression Transfer Examination*.

5.7 The case records will include any printouts, manual transcriptions, or descriptions of any observations made during the examination process used to support your conclusions.

5.8 Conclusions

- The submitted ribbon was transcribed and a copy of the text is provided for investigative assistance.
- The submitted ribbon was transcribed and the text being searched was/was not located.
- The submitted ribbon was not transcribed Redacted This conclusion requires an explanation of the limiting factor(s).

6 Calculations

Not Applicable.

7 Measurement Uncertainty

Not Applicable.

8 Limitations

The following factors could affect the examination process and/or the results rendered:

- Redacted

9 Safety

Standard precautions should be followed for the handling of chemical and biological materials.

Examiners/analysts may refer to the *FBI Laboratory Safety Manual* for additional guidance. Chemical and biological materials that are hazardous or potentially hazardous will be maintained and examined in specifically designated areas within the QDU space.

10 References

FBI Laboratory Safety Manual

Attenberger, David W., Kanaskie, W. Gary, "Examination of a Typewritten Document," *FBI Law Enforcement Bulletin*, June 1981. (57)

Casey, M.A., Purtell D.J., "IBM Correcting Selectric Typewriter: An Analysis of the Use of the Correctable Film Ribbon in Altering Typewritten Documents," American Academy of Forensic Sciences, February 1975. (29)

Gerhart, F. James, "Methods of Associating Typewriter Ribbons and Correcting Tapes with a Questioned Text," American Society of Questioned Document Examiners, September 1988. (234)

Grantham, Steven M., Identification of Indented Typewritten Entries with Characters Present on a Lift-Off Correction Ribbon, American Academy of Forensic Sciences February 1992. (263)

Seaman Kelly, J., and Lindblom, B., *Scientific Examination of Questioned Documents Second Edition*, CRC Press, Boca Raton, FL, 2006.

Rev. #	Issue Date	History
4	05/29/12	Section 6.3 capitalized "Fast". Section 6.6.2 deleted "questioned". Section 6.8 second bullet, deleted "questioned" and added "being searched". Section 6.8 added the last bullet. In the Limitations section, added "submitted" and parentheses, and deleted "questioned and/or known" in the first bullet.
5	03/03/15	Updated Header to read "QDU Standard Operating Procedures Manual". Section 2 first bullet updated to more current version. Replaced "equivalent" with "comparable equipment". Changed "RAW" to "RAW II" throughout document (except third bullet in Section 5.3). Deleted Section 4 "Calibration" and renumbered accordingly. Section 5.1.1 deleted "that is". Sections 5.1.1.2 and 5.4 changed "with" to "within". Section 5.2.1.1 changed "worksheet" to "Laboratory Worksheet", added ", or equivalent in FA". Section 5.3 changed "shall" to "will". Section 5.6.2 added "impression" after "fiber" and updated title of referenced document. Section 7 changed "Uncertainty of Measurement" to "Measurement Uncertainty". Made grammatical corrections throughout document.

Approval

Redacted - Signatures on File